Salton Sea Air Quality Working Group Meeting, Ontario, CA (September 12, 2005)

ATTENDEES:

Pamela Vanderbilt/CH2M HILL
John Chilidakis/CH2M HILL
Carrie MacDougall/CH2M HILL
John Dickey/CH2M HILL
Leslie Meyerhoff/SDCWA
Jerry Boles/DWR
Chuck Keene/DWR
Elliot Mulberg/ARB
Cheryl Rodriguez/USBR
Doug Barnum/SSSO
Bruce Wilcox/IID
Thomas Brinkerhoff/ICAPCD
John Scott/MWD
Todd Caldwell/DRI
Vic Etyemezian/DRI

FROM: John Dickey, Pamela Vanderbilt

DATE: September 12, 2005

Welcome and Introduction
Chuck Keene/DWR, All

Status Update on Emissions Inventory, SIP, Proposed Regulations
Thomas Brinkerhoff/ICAPCD

Imperial County Air Polution Control District: Rule 800 series of regulations on dust and PM control was recently passed by the ICAPCD Board. The ICAPCD will provide copies of the rules by email for Pamela Vanderbilt to distribute to interested work group members.

Rule 310, a proposed Indirect Source Rule, is scheduled for public review in one month. This Rule will apply to commercial, industrial, and residential developments and will deal with their indirect emissions impacts.

A Natural Events Action Plan was adopted as final by the ICAPCD Board. Pamela will also get this Plan from Thomas Brinkerhoff and Reyes Romero. Under this Plan, an agency can exclude certain events from its monitoring data: winds above 20 to 30 mph, fire in area, etc. In order to qualify for exclusion, the ICAPCD must show that they have controlled every man-made source of dust up to the limit of feasibility.

Thomas indicated he would check on the status of ICAPCD responses to the Air Resources Board's comments on the Draft Wind Blown Fugitive Dust Inventory.

Review of Draft Alternatives. Chuck Keene/DWR

Four conceptual barrier alternatives for Salton Sea restoration were shown in illustrations on the wall (North Sea, South Sea, North Sea Combined, South Sea Combined). These alternatives assumed a steady state inflow of 600,000 acre-feet per year. Based on this assumption, about 125,000 to 140,000 acres of exposed playa would occur under most barrier alternative configurations. Water demand estimates to control dust emission on the

exposed playa are based on the conservative assumption that this area would require 1 foot of water per acre per year (up to 140,000 acre-feet of water/yr).

Agency Input on Draft Documents, DWR Approach to the Programmatic EIR, Topics for Future SSAQWG Meetings
Thomas Brinkerhoff/ICAPCD, Steve Smith/SCAQMD, Elliot Mulberg/ARB

Pamela briefly described the air quality technical memoranda and other documents that have been produced to date, and requested comments from those that have not commented.

Input from Others on Draft Documents, DWR Approach to the Programmatic EIR, Topics for Future SSAQWG Meetings
All

Playa emissions controls/Air Quality Management (AQM):

1. Develop the rationale and justification for the facilities and options discussed in draft technical memorandum on control measures for playa emissions. Specifically, address the potential use of gravity flow and open drains, rather than enclosed systems, for AQM infrastructure. Are there any wildlife issues related to the choice of facilities?
2. Pat Chavez has presented additional information to the Science Panel on other large sources of PM emissions in the vicinity of the Sea. Discuss the potential for emissions credit development off-sea as part of a project-specific EIR. Plaster City (Gypsum Mine) Plan EIR will be coming out in a few days; look at it. Credits were part of the 4-step air quality mitigation plan adopted in the IID-SDCWA Water Transfer Project FEIR/FEIS.
3. Discuss the issue of AQ water demand on the overall water balance for each alternative considered. Note the consequences of overcommitment and under commitment of AQ water needs, and the uncertainty associated with AQM water demand assumptions.
4. Include additional research in the technical memo on the possible use of gravel and other more water-efficient or water-free DCMs. The Work Group recommended the study of these other water-efficient/water-free alternative dust control measures as a high priority.
5. One of the major issues associated with the conceptual alternatives is the tradeoffs between water for AQM and other uses, such as water for habitat. This discussion of possible tradeoffs needs to come before Advisory Committee (e.g., discuss water benefit if the area below the brine pond high water line is excluded from AQM requirements).
6. Discuss the timing of additional AQM research, the publication of the PEIR, draft water budget and future water budget refinements, and the actual barrier construction. We would need to refine the water balance based on AQ research results, finalize barrier location. Need to discuss implementation contingencies to make the best use of water that could be freed up from AQM commitments with engineers and others (Armin, Darryl, Habitat Working Group, etc.).
7. Consult with Ted Schade regarding dust control by gravel; he's indicated that it is feasible, but not cost effective relative to water at this point, but may be more feasible in the future? Look at potential of water-efficient AQM measures (such as tillage) being employed by IID.
8. Ask Pat Chavez whether we can confidently exclude some exposed playa areas from requirements for AQM, based on information available to date. Based on current

knowledge, it is premature to identify possible "non-emissive" playa areas. The possibility of future PM-related AQ risk is driving our current conservative approach.

9. Calculate the area that may be utilized by other restoration uses that would minimize the need for AQM, e.g., traffic areas, areas that are sited for wind fences, road watering, gravel, etc. Look at the benefit this may represent regarding water demand for AQM.

Documents should note the level of certainty in the water demand estimates (e.g., specify how much water is required for establishment of plants, reclamation of soils, etc.) Note that as Sea shrinks, the initial water demand for AQM will be lower because the entire area will not be built and irrigated until playa areas are fully exposed.

Elliot Mulberg – Indicated he has not much confidence in WEPs model; some estimates are off by an order of magnitude. He would like to use the MacDougall method. Response: we are planning to use both as check. Need to look at the appropriateness of Environ's approach to adapting MacDougall method. Consistency with the ICAPCD SIP is very desirable.

Wind tunnel measurements are critical. Vic Etyemezian indicated they should be able to start wind tunnel testing next Monday. The Guelph tunnel will be co-located with PI-SWERL at eight sites. Four to seven sites will utilize the PI-SWERL test only. The tests will be run four times during next year, but this fall is the only time they will have the Guelph tunnel. Access to testing locations currently being coordinated with Torres-Martinez Tribe and IID. It is difficult to find adequate sampling locations near shoreline. In some cases the sites will be co-located with prior soil and sediment sampling sites.

Some Work Group members asked that we clearly describe the partitioning of financial responsibility for playa stabilization, describing with as much specificity as possible the sources of funding for the work (e.g., JPA, State, etc.).

Thomas provided draft comments from Reyes Romero (ICAPCD) on draft technical memoranda; final comments will be forwarded by Reyes soon. He indicated that offsets from control of off-sea sources is not an option for mitigation, as these sources will fall under control requirements currently being adopted by the air agency. ICAPCD's Draft Wind Blown Fugitive Dust Inventory has been reviewed by ARB. In the draft, estimates of windblown dust from agricultural lands have been reduced from 173 to 10.5 tons per day, and estimates of emissions from open areas went from unestimated to 792 tpd. The ICAPCD is currently responding to ARB comments on the Draft Inventory.

Discussion of Short-Term vs. Long-Term Research/Information Needs; Responses to Comments
Facilitators Chuck Keene/DWR and John Dickey/CH2M HILL, All

Prepare a more thorough discussion of short-term (ST) and long-term (LT) research needs, share with group next month for input. The highest priority will be settling on ST research needs that can be incorporated into the PEIR.

Notes on the Work Group's input was incorporated in the research needs spreadsheet. Doug Barnum provided notes and updates on research needs identified in a 2003 meeting

on this subject. The list of information and research needs from the August 2003 meeting are attached at the end of these minutes.

Discussion of Sediment Testing Results, Potential to Affect Human Health, Recommendations for Additional Study
John Chiladakis, CH2M HILL

Scoping comments on the PEIR indicated a need to look at constituents of soil and sediment that may later result in hazardous air pollutant (HAP) emissions from the proposed project.

John Chiladakis provided a background on health risk assessment for inhalation and ingestion pathways, and results to date for constituents of concern (see presentation).

Vic recommended that the samples be re-suspended and analyzed for concentrations by soil particle size. "Control the dust, you control the problem" only works if you have 100% control.

It was suggested that we perform screening modeling with real metrological data to predict where the soil PM might end up and where people may be exposed. Are there project alternatives where there are higher exposure levels?

It was recommended that we analyze samples for hexavalent chromium, not just total chromium.

Doug Barnum recommends that H2S generated under certain conditions at the Sea (and maybe NH3) be assessed under the potential health risk assessment. However, H2S and NH3 are not linked with particulates, but are emitted as gases from lakebed surface. H2S and NH3 emissions events have coincided with major fish kills. Sulfide is oxidized to sulfate in the calcium sulfate-saturated waters of the sea causing gypsum (calcium sulfate) crystals to be formed in the water column that causes the sea to become bright green. Chuck will consider adding John Chilidakis to peer review science group looking at thermocline and H2S production.

Schedule Update
Chuck Keene/DWR

The Work Group was briefed on the overall project schedule. Note that the Draft PEIR will not include a preferred alternative. DWR may recommend one before Dec 2006, or may not. As part of the Ecosystem Restoration Plan, a preferred alternative will be submitted to the Legislature for their consideration,. In addition, the Final PEIR and a financing plan will be prepared and submitted to the Legislature as required.

ERP, PEIR, and financing plan due by end of 2006. More details will be provided near end of this year on the status of the various draft documents.

Path Forward, Next Steps
Chuck Keene/DWR

New website is www.saltonsea.water.ca.gov; went live as of 10 days ago. Calendar of all future meetings (including AQ Work Group meetings), with handouts and reports are available.

Future topics:

- 10-m meteorological tower measurements compared to CIMIS 2-m meteorological measurements.
- General time line for the overall project, taking into account research efforts and timing. Project constructability sequences available to date.
- Modeling and wind tunnel study update.

Next meeting

Discuss short-term research needs that can be incorporated into the ERP and PEIR; future meetings will focus on prioritizing long-term needs to help with project specific planning and implementation.

Present wind data from 10-m metrological towers correlated with 2-m CIMIS stations.

Provide preliminary results of wind tunnel studies and its implications for AQM and future restoration alternatives.

Provide information on monitoring of exposed playa and how monitoring will keep pace with drawdown of the sea. Provide information on shallow groundwater levels beneath the sea and how will shallow groundwater and gradual shoreline exposure affect emissivity. Discuss phasing of construction and future AQ research (e.g., implementation of pilot projects, etc).

Provide an update on alternative development.

Date and location for our next Air Quality Working Group meeting - Nov 9, 2005 at Ontario DFG office. Pamela to forward preliminary announcement and agenda at least two weeks prior to the meeting.

From Doug Barnham/SSSO.

August of 2003, Air Quality Meeting – Bermuda Dunes

Establishment of Baseline Information/Dataset

1. continue and expand the data analysis of archive datasets available, as USGS Flagstaff has done for Science Office
2. particulate mater differentiation of chemical components – separate out background PM10 dust vs nondust – need to separate out vehicle vs dust vs urban vs chemical speciation/composition
3. remote monitoring stations – digital camera- does not address nocturnal events because of optical requirements unless thermal or IR
4. satellite monitoring – for change detection - use Landsat TM for vegetation, land cover , use Landsat on clear day vs non-clear day to make PM10 image at high resolution

Long-term Monitoring

- Data now available for Niland, Westmoreland for air speed, air direction and PM10 – need to determine locations for additional stations – equipment for additional sites especially at the southern, sw area and at north end in close proximity to the sea, Naval test base has electrical power, TM is installing Met station at north end of sea
- Develop ongoing system of monitoring within the SS sediments such as sand catchers , receding shorelines, - develop a plan for implementation – proactive
- Examine time sensitive – age related phenomenae for exposed soils

Short term Research needs (30 months)

- Additional analyses of secured sediment samples
- Map barnacle distribution shell beds
- Collect additional cores and grab samples between –15 and –25 contours, cores collected deep enough for geotechnical assessments also
- Increase density of samples in areas indicated by prior sampling to be suspect areas for further and closer examination
- Network of peizometers installed to examine hydrology of shallow groundwater component as it influences sediment structure and percolation
- Conduct research on potential emissivity of sediments of the SS –wind tunnel experiments
    - Niland evaporation pond site to assess potential use of salt caps, how do we generate suitable substrate, what is suitable substrate (i.e. salt type, thickness)
    - Exposed sediments – need to examine seasonal variation, site variation, temporal variation, temperature

Mitigation research needs

- Locate emissive soil and then experiment with data generated from above to test feasibility of using salt capping

- Develop suite of tools based on Owens Lake research and then deploy small tests of these tools as applicable to the Salton Sea – this will determine which tools are applicable to this specific area– then as shoreline recedes and as areas become emissive be ready to activate mitigation tools along with monitoring of implementation

TOP NEEDS

1. ESTABLISHMENT OF BASELINE INFORMATION – additional monitors, best locations, air quality monitoring plan for the Salton Sea incorporating existing system of monitors (so long as data collection needs are adequate (may require modification or enhancement of existing system). Continue analysis of existing archive data
2. EVALUATE AND REFINE acoustic technology for use at Salton Sea
3. SOIL EMISSIVITY RESEARCH
4. Mitigation research-
    a. Salt capping
    b. shallow habitat
    c. vegetation (soil reclamation)
    d. gravel